

CLAIMS

1. In combination with a towing line extended from a retrieval ship, a grapple anchor device hooked to the towing line for underwater towing of an unmanned vehicle toward the retrieval ship, comprising: an elongated housing; prong means pivotally connected to the housing for engagement by the tow line under a towing tension during said towing of the unmanned vehicle; rod means coupled to the unmanned vehicle by an anchor line and extending into the housing for displacement therein in response to said towing tension exerted by the tow line; lock means mounted on the housing for holding the prong means in a towing position on the housing hooked to the tow line during said towing of the unmanned vehicle; and actuating means operatively connected to the lock means within the housing for release of the prong means from the tow line in response to a reduction in said towing tension in the tow line upon termination of said towing of the unmanned vehicle.
2. The grapple anchor device as defined in claim 1, including: dampening means within the housing for minimizing said displacement of the rod means during said towing of the unmanned vehicle; and spring means within the housing for directionally biasing the rod means in opposition to the displacement imparted thereto by the tow line through the prong means during said towing of the unmanned vehicle.
3. The grapple anchor device as defined in claim 2, wherein the rod means comprises: an elongated rod element within the housing; a plunger disc connected to the rod element within the housing in engagement with the dampening means; a loop ring interconnecting the plunger disc with the anchor line externally of the housing; and plunger plate means operatively connecting

the rod element within the housing to the actuating means in axially spaced relation to the plunger disc for release of the lock means from the towing position holding the prong means hooked to the tow line.

4. The grapple anchor device as defined in claim 3, wherein the lock means comprises: a collar slidably mounted on the housing, having a projection extending through a slot in the housing and connected to the actuating means therein.
5. The grapple anchor device as defined in claim 4, wherein said actuating means includes: a pulley rotatably mounted within the housing; and a flexible pulley line positioned on the pulley and interconnected at opposite ends thereof to the plunger plate means on the rod element and the collar projection.
6. The grapple device as defined in claim 1, wherein the lock means comprises: a collar slidably mounted on the housing, having a projection extending through a slot in the housing and connected to the actuating means therein.
7. The grapple device as defined in claim 6, wherein said actuating means includes: a pulley rotatably mounted within the housing; and a flexible pulley line positioned on the pulley and interconnected at opposite ends thereof to the plunger plate means on the rod element and the collar projection.

8. In combination with an underwater tow line, a grapple anchor device through which a watercraft undergoes towing, comprising: a tubular housing; an elongated rod connected to the watercraft and extending into the housing; prong means pivotally mounted on the housing for controlled hooking engagement with the tow line; lock means on the housing for displacement thereon between locking and release positions respectively holding and releasing the prong means from said hooking engagement with the tow line; and actuating means engaged by the rod in response to displacement thereof in one direction within the housing during said towing of the watercraft for imparting said displacement to the lock means to the release position in response to a reduction in towing force applied through the towing line and the prong means to the grapple anchor device.

9. The combination as defined in claim 8, including: dampening means within the housing for minimizing said displacement of the rod during said towing of the watercraft.

10. The combination as defined in claim 9, wherein said lock means comprises: a collar slidably mounted on the housing having an annular recess within which the prong means is engaged.

11. The combination as defined in claim 8, wherein said lock means comprises: a collar slidably mounted on the housing having an annular recess within which the prong means is engaged.